IN THE CLAIMS

1 – 28 (previously cancelled)

29. (currently amended) An optical network comprising:

a plurality of ~~similarity configured~~ nodes where each node comprises:

an optical switch including a plurality of ports, each port adapted to transmit optical signals and to received optical signals, and each port assigned a port identification unique to each ~~node~~ port;

said optical switch operable to route optical signal from a first port to a second port;

a light source connected to said optical switch, said light source operable to generate optical signals;

a light detector connected to said optical switch, said light source operable to detect optical signals;

a control circuit connected to said optical switch, said light source, and said light detector;

said control circuit operable to determine connection information for each of the ports of said optical switch, the connection information including port identification and node identification of ports and nodes connected to each of said optical switch; and

a router connected to each node of said plurality of nodes adapted to receive the connection information from the nodes of said plurality of nodes.

30. (previously cancelled)

31. (previously presented) An optical network recited in claim 29 wherein said router is programmed to poll said control circuit of each node for connection information.

32. (previously presented) An optical network recited in claim 29 wherein a first control circuit of a first node is operable to forward its connection information to a second control circuit of a second node.

33. (currently amended) An optical network recited in claim 29 wherein ~~said~~ a first control circuit of a first node activates a first light source of the first node to generate node identification signal for transmission to a second node via one of the ports of the first node.

34. – 38. (previously cancelled)

39. (currently amended) A method of determining topology of a network having a plurality of interconnected nodes, each node having a plurality of ports, and wherein a first port of a first node is connected to a first port of a second node, ~~the second node similarly configured to the first node,~~ and a second port of the second node is connected to a first port of a third node, ~~the third node similarly configured to the first node,~~ the method comprising:

transmitting a node identification signal from the first port ~~to~~ of the second node wherein the node identification signal includes node identification of the second node and port identification of the first port of the second node;

receiving, at the first port of the first node, the transmitted node identification signal;

determining connection information, from the received node identification signal, that the ~~fist~~ first port of the first node is connected to the first port of the second node;

storing the connection information;

forwarding the connection information to a router;

transmitting a node identification signal from the second port to the second node wherein the node identification signal includes node identification of the second node and port identification of the second port of the second node;

receiving, at the first port of the third node, the transmitted node identification signal;

determining connection information, from the received node identification signal, that the first port of the third node is connected to the second port of the second node;

storing the connection information; and

forwarding the connection information to a router.

40. (previously presented) The method recited in claim 39 wherein the first node is identified using a first node identification provided by the router.

41. (previously presented) The method recited in claim 39 further comprising a step of storing, at the router, the connection information.

42. (previously presented) The method recited in claim 39 further comprising a step of polling the first node for the connection information.

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